REMARKS

Entry of this Amendment and reconsideration are respectfully requested in view of the amendments made to the claims and for the remarks made herein.

Claims 1, 3 and 5-7 are pending and stand rejected.

Claims 1, 3 and 5-7 have been amended.

Claims 1, 3 and 5-7 stand rejected under 35 USC 103(a) as being unpatentable over Chen (USP no. 5,915,205) in view of Williams (USP no. 6,151,559).

Applicant respectfully disagrees with, and explicitly traverses, the reason for rejecting the claims.

With regard to claim 1, this claim, as amended, recites:

> A communication ~~Communication~~ system, comprising:
>
> a network, one or more optical transmitters and that may be subjected to potential noise sources, wherein the communication system includes an adaptive filter coupled between the potential noise sources and the at least one optical transmitter, which **filter has a cut-off frequency, dependent on the noise frequency,** and a noise detector, wherein the adaptive filter (1) **blocks detected impulse noise from passing upstream through the communication system**, (2) enables prevention of clipping of the optical transmitter and (3) **enables substantially undisturbed upstream communication above the cut-off frequency of the filter**.(emphasis added).

Chen, as read by applicant, discloses a cable television system employing noise cancellation in order to reduce radio frequency noise for upstream signals. The system employing noise cancellation at the headend includes an antenna at a central distribution point. The noise received by the antenna is correlated with noise on the upstream line for canceling or reducing the noise. (see ABSTRACT). More specifically, and with reference to Figure 3,which is referred to in the Office Action, Chen discloses receiving an upstream signal on line 208 and applying it to bandpass filter 310 and further receiving a noise signal on antenna 220 and applying the noise signal to bandpass filter 306. The filtered signals are applied to respective modulators and the modulated signals are applied to E/O converter 302 for subsequent transmission to the headend (not shown). The signals are modulated at carrier frequencies that prevent interference with one another. (see col. 5, lines 30-55, which state in part, "Fig. 3 illustrates circuitry necessary ... to transmit the upstream and antenna signals to the headend ... The antenna is coupled

to band pass filter 306 which filters out signals that are outside the band of interest for canceling the noise on the upstream signal. The output of band pass filter 306 is then coupled to modulator 304 which modulates the information on a suitable carrier so that it may be **separately transmitted along the fiber optic cable 204 without interfering with the information provided by the upstream signals ...**(emphasis added). ... The upstream signals received ... coupled to band pass filter 310 which eliminates signals outside the pass band for upstream signals. The output of band pass filter 310 is passed to modulator 308 which modulates the signal on a suitable carrier for transmission along fiber cable 204."

Chen further discloses that the headend separates the received upstream signal and the separately transmitted noise signal and removes the noise signal from the upstream signal by a correlation process (see Fig. 4 and col. 5, line 56-col. 6, line 21).

Hence, Chen teaches a system having two paths, one for a noise signal filtered by a band pass filter to remove signals outside a band of interest and a second for an upstream signal, including data and noise, band limited to remove signal outside "the pass band for upsteam signals." Chen discloses that the upstream signal is in the band from "approximately 5-50 MHz" (see col. 1, lines 13-14). Chen further discloses that "an antenna local to each of the subscribers receives radio frequency interference signals in the range of substantially 5-50 MHz. (see col. 3, lines 7-10). Accordingly, Chen teaches a bandpass filter that encompasses the upstream frequency band (5-50MHz), which allows the upstream data and associated noise in the upstream frequency band to be transmitted and fails to disclose or suggest "a filter [having] a cut-off frequency, dependent on the noise frequency, wherein the adaptive filter blocks detected noise from passing upstream," as is recited in the claims.

Williams, as read by applicant, teaches a system for characterizing the nature and the severity of the impairments affecting a radio frequency signal path by providing a test signal to the path. "Testing is done by monitoring the output of an unused signal path with a filter and a totaling counter. The filter passes impairment energy from the signal path to the counter in a frequency band of interest. The band pass filter limits the ability of impairments of signals from other frequency bands to increase the counter's count value." (See ABSTRACT). More specifically, Williams teaches, in Figure 1, a bi-

directional cable system including a filter 116 (which is referred to in the Office Action) in front of an optical transmitter (108 of Figure 1). Williams teaches that "downstream electrical signals are applied to a diplex filter 116 which allows bi-directions signal flow on a same hard line coaxial cable 118. The diplex filter consists of a high-pass section 136 and a low-pass section 138. Upstream signals taken from the hard line coaxial cable pass through the diplex filter 116 into the upstream laser transmitter."

In the configuration shown in Figure 1, the diplex filter 116 is used to isolate high frequency downstream signals, in the range of 54 to 550 MHz (see col. 1, lines 33-34) from the lower frequency upstream signals, in the range of 5 to 30 MHz. (see col. 1, lines 49-50). Hence, while Williams teaches a method for characterizing the nature and severity of impairments in a channel using a filter and counter, the filter referred to in the Office Action fails to teach or suggest "a cut-off frequency, dependent on the noise frequency, wherein the adaptive filter blocks detected noise from passing upstream," as is recited in the claims.

A claimed invention is prima facie obvious when three basic criteria are met. First, there must be some suggestion or motivation, either in the reference themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the teachings therein. Second, there must be a reasonable expectation of success. And, third, the prior art reference or combined references must teach or suggest all the claim limitations.

Neither Chen nor Williams, individually or in combination, teach or suggest all the elements recited in the above referred-to claims. As shown both Chen and Williams fail to describe a filter having a cutoff frequency dependent on the noise frequency, which blocks noise from the upstream signal. Having shown that the combination of Chen and Williams fails to teach or suggest all the elements claimed, applicant submits that the reason for the rejection has been overcome and the rejection can no longer be sustained. Applicant respectfully requests withdrawal of the rejection and allowance of the claim.

In addition, "to establish a prima facie case of obviousness of a claimed invention, all the claim limitations must be taught or suggested in the prior art." See *In re Royka,* 490 F. 2d 981, 180 USPQ 580 (CCPA 1975). The proposed modification of Chen fails to

establish a prima facie case of obviousness because, Chen provids no motivation to use a filter having a noise dependent cutoff frequency as such a filter would defeat the purpose of Chen. More specifically, the incorporation of a filter having a cutoff frequency dependent on a noise frequency as filter 310 would cause the upstream signal to be limited to the noise cutoff frequency and all upstream signals above the cutoff frequency would be lost. Hence, even if the low pass filter of Williams could be said to have a cutoff frequency dependent upon noise, were incorporated into the device of Chen, the cutoff frequency would prevent upstream signals from being transmitted to the headend. Hence, there is no to develop the noise frequency cutoff filter as suggested, as the proposed modification fails to describe a filter having a cutoff frequency dependent on the noise frequency.

Accordingly, the combination of Chen and Williams cannot be said to render obvious the invention recited in the independent claims, as the combined device fails to recite an element recited in the independent claims.

Having shown that there is no teaching or suggestion to combine the reference cited, applicant submits that the reason for the rejections of claim 1 has been overcome and the rejection can no longer be sustained. Applicant respectfully requests withdrawal of the rejection and allowance of the claims.

With regard to the remaining claims, these claims ultimately depend from independent claim 1, which has been shown not to be obvious, and, hence, allowable, over the cited references. Accordingly, the aforementioned claims are also allowable by virtue of their dependence from an allowable base claim.

With regard to the statements in the Office Action made in response to the applicant's arguments, applicant submits that contrary to the statement made on page 3, filters 306 and 310 filter noise that is outside the band of interest, but fail to remove noise from potential sources within the band. Hence, noise received from the antenna 220 and noise included in the upstream signal, within the band of interest, are provided to the headend for subsequent processing. If the noise were filtered from the upstream signal, as suggested, then the headend would not require a correlation means to remove noise from the upstream signal as is shown in Figure 4. In addition, if noise were removed from the upstream signal then there would be no need for the noise received from the

antenna to be transmitted to the headend. Accordingly, the incorporation of a filter with a noise dependent cutoff filter would impose significant changes to the device of Chen.

Hence, contrary to the statements made in the Office Action, Chen fails to describe a material element of the claimed invention and incorporation of such a material element would significantly alter the teachings of Chen. Accordingly, the proposed modifications to Chen fail to render obvious the claimed invention.

Although the last Office Action was made final, this amendment should be entered. The claims have each been amended to correct errors in form. No matter has been added to the claims that would require comparison with the prior art or any further review. Accordingly, pursuant to MPEP 714.13, applicant's amendments should only require a cursory review by the examiner. The amendment therefore should be entered without requiring a showing under 37 CFR 1.116(b).

For all the foregoing reasons, it is respectfully submitted that all the present claims are patentable in view of the cited references. A Notice of Allowance is respectfully requested.

Respectfully submitted,

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